

CLAIMS

What is claimed is:

1. An industrial truck, comprising:
a pivot frame;
a lift frame assembly, which includes at least one fork, connected to the pivot frame; and
a steering assembly, rotatably connected to the pivot frame and rotatable about a steering axis that is tilted toward the fork at a predetermined angle from vertical;
wherein
the steering assembly includes a tiller having a handle formed on its distal end to enable an operator to rotate the steering assembly about the steering axis.
2. An industrial truck, as recited in claim 1, wherein the predetermined angle is between 2 and 5 degrees.
3. An industrial truck, as recited in claim 1, wherein the tiller is pivotally fastened to a tiller mount and the tiller mount is rotatably connected to the pivot frame such that the tiller rotates about the steering axis to steer the industrial truck.
4. An industrial truck, as recited in claim 3, wherein the tiller mount is rotatably connected to the pivot frame through a steering bearing.
5. An industrial truck, as recited in claim 1, further comprising a power unit rotatably connected to the pivot frame, such that the power unit is rotatable about a drive axis, and connected to the steering assembly such that the steering assembly and the power unit rotate together.
6. An industrial truck, as recited in claim 5, wherein the steering axis and the drive axis are aligned and together define a pivot axis of the industrial truck.
7. An industrial truck, as recited in claim 6, wherein the pivot axis is tilted toward the fork at a predetermined angle from vertical.
8. An industrial truck, as recited in claim 7, wherein the predetermined angle is between 2 and 5 degrees.

9. An industrial truck, as recited in claim 5, wherein the drive axis is vertical.
10. An industrial truck, as recited in claim 9, wherein the power unit is connected to the steering assembly through a multi-axis pivot joint.
11. An industrial truck, as recited in claim 10, wherein the multi-axis pivot joint is a Cardan joint.
12. An industrial truck, as recited in claim 5, wherein the power unit comprises:
 - a transmission housing rotatably connected to the pivot frame and rotatable about the drive axis;
 - a motor fastened to the transmission housing; and
 - a drive wheel rotatably connected to the transmission housing and driven by the motor through a transmission assembly.
13. An industrial truck, as recited in claim 12, wherein the transmission housing is rotatably connected to the pivot frame through a steering bearing.
14. An industrial truck, comprising:
 - a pivot frame;
 - a lift frame assembly connected to the pivot frame, the lift frame including as least one fork that extends away from the pivot frame;
 - a steering assembly rotatably connected to the back of the pivot frame for rotation about a steering axis and including a tiller, the tiller having a handle formed at its distal end and being rotatable in an arc from one side of the industrial truck, around the back of the industrial truck, and to the other side of the industrial truck, to rotate the steering assembly about the steering axis, wherein the steering axis is tilted toward the fork a predetermined amount from vertical such that the distal end of the tiller tilts toward the fork when in a fully turned position; and
 - a drive wheel rotatably connected to the steering assembly, the direction of wheel rotation being determined by the rotatable orientation of the steering assembly to control the direction of motion of the industrial truck.

15. An industrial truck, comprising:
a pivot frame;
a lift frame assembly, which includes at least one fork, connected to the pivot frame; and
a power unit, rotatably connected to the pivot frame and rotatable about a steering axis that is tilted toward the fork at a predetermined angle from vertical;
wherein
the power unit includes a tiller having a handle formed on its distal end to enable an operator to rotate the power unit about the steering axis.
16. An industrial truck, as recited in claim 15, wherein the predetermined angle is between 2 and 5 degrees.
17. An industrial truck, as recited in claim 15, wherein the tiller is pivotally fastened to a transmission housing and the transmission housing is rotatably connected to the pivot frame such that the tiller rotates about the steering axis to steer the industrial truck.
18. An industrial truck, as recited in claim 15, wherein the power unit comprises:
a transmission housing rotatably connected to the pivot frame and rotatable about the steering axis;
a motor fastened to the transmission housing; and
a drive wheel rotatably connected to the transmission housing and driven by the motor through a transmission assembly.
19. An industrial truck, as recited in claim 18, wherein the tiller is pivotally fastened to the transmission housing such that the tiller rotates about the steering axis to steer the industrial truck.

20. An industrial truck, comprising:
- a pivot frame;
 - a lift frame assembly connected to the pivot frame, the lift frame including as least one fork that extends away from the pivot frame;
 - a power unit rotatably connected to the back of the pivot frame for rotation about a steering axis and including a tiller, the tiller having a handle formed at its distal end and being rotatable in an arc from one side of the industrial truck, around the back of the industrial truck, and to the other side of the industrial truck, to rotate the power unit about the steering axis, wherein the steering axis is tilted toward the fork a predetermined amount from vertical such that the distal end of the tiller tilts toward the fork when in a fully turned position; and
 - a drive wheel rotatably connected to the power unit, the direction of wheel rotation being determined by the rotatable orientation of the power unit to control the direction of motion of the industrial truck.